

REMARKS

This is in response to the non-final Official Action currently outstanding with regard to the above-identified application.

Claims 1-23 were pending at the time of the issuance of the currently outstanding non-final Official Action in the above-identified application. By the foregoing Amendment, Claims 1-9, 15, 16, 18-20 and 22-23 have been amended. No claims have been cancelled, added or withdrawn by the foregoing Amendment. Accordingly, Claims 1-23 as hereinabove amended now constitute the claims under active prosecution in this application.

The Claims of this application are reproduced above with appropriate status identifiers and showing the changes being made as required by the Rules.

More particularly, in the currently outstanding non-final Official Action:

1. Acknowledged Applicants' claim for foreign priority under 35 USC §119 (a)-(d) or (f), and confirmed the receipt by the United States Patent and Trademark Office of the required copies of the priority documents for this application.
2. Indicated that the drawings as filed with this application on 7 February 2006 have been accepted.
3. Provided Applicant with a Notice of references cited that lists references cited by the Examiner.

4. Acknowledged his receipt and consideration of Applicant's Information

Disclosure Statements as filed on 7 February 2006 and 21 June 2006 by providing Applicant with copies of the Forms PTO/SB/08a/b that accompanied those Statements duly electronically signed, dated and initialed by the Examiner in confirmation of that consideration. – **Similar consideration of the art provided with Applicants' Information Disclosure Statement of 29 May 2008 in response to this communication is respectfully requested.**

5. Rejected Claims 1-10, 12, 15, 16, 19, 20, 22 and 23 as being unpatentable under 35 USC 103(a) over Peeters et al (US Patent No. 6,340,216) in view of Lin et al (US Patent No. 6,238,393).

6. Rejected Claims 11, 13, 14, 17, 18 and 21 under 35 USC 103(a) as being unpatentable over Peeters in view of Lin et al further in view of Ohno et al (US Patent No. 6,096,468).

Further comment regarding items 1-4 above is not deemed to be required in these Remarks.

With respect to items 5 and 6 above, however, Applicant respectfully submits the following in rebuttal of the Examiner's various positions.

Claims 1 through 15

It is an object of each of Claims 1 through 15 to restrain the charge-up of an insulating substrate at the time when an image is formed by fluid discharge. In order to achieve this object, the present invention is characterized mainly by using “as the drive voltage, a bipolar pulse voltage which alternates between positive and negative”. The Examiner, however, has asserted that this characteristic of the present invention is disclosed in the Peeters reference at Column 20, lines 36-47. However, Applicants respectfully submit that the Peeters reference at Column 20, lines 36-47 does not teach, disclose or suggest an electrostatic suction type fluid discharge device. Furthermore, Applicants respectfully submit that even if a drive voltage application method as disclosed in the Peeters reference were to be applied in an electrostatic suction type fluid discharge device, such a combination would not create the present invention.

Accordingly, Applicants respectfully submit that it should be noted by the Examiner that in Fig. 22 of the Peeters reference (which is being discussed at Peeters, Column 20, lines 36-47) an AC voltage is applied for the purpose of separating a marking material (282) from the carrier (262) and the electrode (276) in the cavity (264). Furthermore, a DC bias is considered to have an effect on the movement of the marking material (282) from the carrier (262) to the electrode (276) and *vice versa* whereby the AC voltage in the Peeters reference does not change the polarity of the marking material (282) itself.

On the other hand, in the electrostatic suction type fluid discharge device of the present invention by using “as the drive voltage, a bipolar pulse voltage which alternates between positive and negative”, **a positively-charged fluid and a negatively charged fluid are alternately discharged**. This, of course, prevents the charge-up of the substrate.

In view of the foregoing and to further clarify Claims 1-15, Applicants by the foregoing Amendment have amended Claims 1-9 and 15 by the addition of the phraseology “such that a positively charged fluid and a negatively charged fluid are alternately discharged in accordance with a polarity of the bipolar pulse voltage applied as the drive voltage”. Applicants respectfully submit that these amendments clearly and definitely overcome the Examiner’s outstanding rejections of Claims 1-15 and respectfully request a decision so holding in response to this communication.

Claims 16, 17 and 19 through 22

The inventions of Claims 16, 17 and 19-22, on the other hand are characterized mainly in that “an electric charge is provided to a surface of an insulating substrate, in line with a predetermined pattern (before image formation by fluid discharge)”. The Examiner in this instance asserts that this characteristic is disclosed in the Peeters reference at Column 9, lines 63-66.

It is to be understood, however, that the “predetermined pattern” referred to in Claims 16 and 17 of the present application correspond to a “drawing pattern” that is to be drawn by the discharge fluid on the insulating substrate, and further that this “drawing pattern” is drawn according to image data.

On the other hand, the description at Column 9, lines 63-66, of the Peeters reference discloses that the electrodes (314) and (315) are formed in a rectangular or annular shape (see, Fig. 40F). Furthermore, in the Peeters apparatus, the marking material taken from the cavity (28) by the electrode (54) is discharged in a direction of an arrow A from the channel (46) and reaches the substrate (sheet, etc.) (38) (Figs. 2 through 4).

Hence, Applicants respectfully submit that the drawing pattern is formed on the substrate (38) in Peeters, and the shape of the drawing pattern and the shapes of the electrodes (314) and (315) therein are considered to have no relationship therein. Accordingly, in order to clarify this point of distinction between the Peeters reference and the present invention, Applicants have added limitations to Claims 16, 17 and 19 through 20 that clearly indicate that the “predetermined pattern” of Claims 16 and 17, and the “drawing pattern” of Claims 19 through 22 are patterns **that are formed in accordance with desired patterning data.**

Claims 18 and 23

Claim 18 of the present invention is characterized mainly by including “voltage application means that is capable of touching the insulating substrate on which a pattern of a conductive material is formed and that applies a voltage to a conductive part on the insulating substrate when the electrostatic suction type fluid discharge device discharges the discharged fluid”. With respect to this characteristic, however, the Examiner asserts that a charging roller 51 as shown in Fig. 7 of the Ohno reference corresponds to the voltage application means of the present invention. Applicants respectfully disagree.

Specifically, Fig. 7 of the Ohno reference shows an arrangement of an electrophotographic apparatus suitable for the practice of an image formation method that is clearly different from that of the electrostatic suction type fluid discharge device of the present invention. Hence, Applicants respectfully submit that the Examiner’s rejection based upon a combination of the Peeters and Ohno references is not appropriate (i.e., the combination of the ohno and Peeters references suggested by the Examiner is clearly and definitely the result of improper hindsight reasoning using the present specification as a guide for the combination of disparate elements of the prior art whose combination in the manner herein claimed is not disclosed, taught or suggested by the prior art).

Furthermore, Applicants respectfully submit that even if the Ohno and Peeters references could be appropriately combined, the result would be that the charging roller (51) of the Ohno reference could not “apply a voltage to a conductive part (toner) on the insulating substrate (photosensitive member)”. This is because toner (50) is not present in a section where the charging roller (51) touches the photosensitive member (56), the toner (50) having been removed by the cleaning section (59).

Applicants respectfully submit that the result of the foregoing analysis is that even if the combination of the Ohno and Peeters references suggested by the Examiner could properly be made (a fact that Applicants do not admit), it is clear that in any such combination the charging roller (51) does not, and cannot fairly be made to, correspond to the voltage application means of the present invention. Consequently, Applicants respectfully submit that the currently outstanding rejection based upon the combination of the Peeters and Ohno references is improper, and if not improper at least insufficient to render the present invention unpatentable. A decision so holding in response to this submission is respectfully requested.

Claim 23 of the present application, on the other hand, is characterized mainly in that “the second drawing portion is formed while a voltage is applied to the conductive part by which the first drawing pattern is made”. The Examiner suggests that this characteristic of the present invention is disclosed at Column 24, lines 31-35 of the Peeters reference.

Specifically, the Examiner’s argument in the latter regard is that a “net positive charge” in the Peeters reference corresponds to “the first drawing pattern” of the present application, and that an image formed with “marking material particles” corresponds to the “second drawing pattern”. Applicants respectfully submit, however, that the Examiner’s allegation of correspondence in the latter regard is not appropriate because in the cited art in a manner different from “the first drawing pattern” of the present invention, the “net positive charge” in the cited and relied upon art is not formed by a conductive material.

In view of the foregoing, Applicants have in the foregoing Amendment added the limitation to Claims 18 and 23 that the “drawing pattern” is a pattern that is formed in accordance with desired patterning data so as to clarify the relationship between the “insulating substrate” which is limited to the sheet (38) in the Peeters reference and the “drawing pattern” herein claimed.

Conclusion

Consequently, in view of the foregoing Amendment and Remarks, Applicant respectfully submits that as amended above the above-identified application now is in condition for allowance. A decision so holding in response to this submission is respectfully requested.

Finally, Applicant believes that additional fees beyond those submitted herewith are not required in connection with the consideration of this response to the currently outstanding Official Action. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. 04-1105, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

Date: August 29, 2008

David A. Tucker
SIGNATURE OF PRACTITIONER

Reg. No.: 27,026

David A. Tucker
(type or print name of practitioner)
Attorney for Applicant(s)

Tel. No. (617) 517-5508

Edwards Angell Palmer & Dodge LLP

P.O. Box 55874

Customer No.: 21874

P.O. Address

Boston, MA 02205